

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/802,482	PERRY ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Alysa N. Brautigam	2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 22 November 2004.
2. ☒ The allowed claim(s) is/are 1-45.
3. ☒ The drawings filed on 22 November 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
  - (      1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

## **DETAILED ACTION**

### ***Drawings***

1. Applicant's amendments, see Figure 7, filed 22 November 2004, with respect to Item 404 have been fully considered and are persuasive. The objection to the drawings has been withdrawn.

### ***Specification***

2. Applicant's amendments, see pages 2-3, filed 22 November 2004, with respect to the following have been fully considered and are persuasive.

- Figure 7, Item 750
- Figure 8, Item 800
- Figure 13

The objection to the specification has been withdrawn.

### ***Allowable Subject Matter***

3. Claims 1-45 are allowed.
4. The following is an examiner's statement of reasons for allowance:
5. While prior art teaches a method for rendering a region of a distance field representing an object and wherein the distance field is partitioned into a set of cells, prior art fails to teach, alone or in combination, wherein a set of source cells are selected from the set of cells of the distance field to render the region and wherein each

source cell in the set of source cells is represented by a geometric element and the geometric element is associated with a texture map, the texture map comprising distance samples of the corresponding source cell. Neither does prior art teach or suggest texture mapping, using the distance samples, each geometric element to determine a distance for each sub-pixel associated with the element.

6. Frisken et al. ("Adaptively Sampled Distance Fields: A General Representation of Shape for Computer Graphics," SIGGRAPH 2000) discloses a method for rendering (page 252, Section 4.2 discloses the method as applicable to volume rendering) a region of a distance field representing an object, wherein the distance field is partitioned into a set of cells (page 251, Figures 4a-d disclose the object ["R"] partitioned into cells), each cell comprising a set of distance samples (page 249, section 1 - "Introduction", lines 5-7) and a method for reconstructing the distance field within the cell using the distance samples (page 251, section 3.3 - "Reconstructing ADFs", lines 1-2). However, Frisken does not disclose wherein each source cell in the set of source cells is represented by a geometric element and the geometric element is associated with a texture map, the texture map comprising distance samples of the corresponding source cell.

7. Perry et al. ("Kizamu: A System for Sculpting Digital Characters," Proceedings ACM SIGGRAPH 2001, pp 47-56) discloses a method for using Adaptively Sampled Distance Fields, as described in the Frisken paper cited above, for editing and rendering digital images. In particular, Perry discloses several improvements on the techniques including the ability to perform procedural texturing. However, Perry does not disclose

wherein a set of source cells are selected from the set of cells of the distance field to render the region and wherein each source cell in the set of source cells is represented by a geometric element and the geometric element is associated with a texture map.

8. Crawfis et al. ("Texture Splats for 3D Scalar and Vector Field Visualization") discloses a method for texturing using scalar fields as an intensity map. Crawfis further discloses the transformation of the vector field from world coordinates to pixel coordinates and the use of octree volume rendering. However, Crawfis does not disclose the basic components of the claimed method including the rendering of a distance field representing an object wherein the distance field is partitioned into a set of cells, each cell comprising a set of distance samples and a method for reconstructing the distance field within the cell using the distance samples. Neither does Crawfis provide any suggestion to combine the disclosed method with the methods disclosed by Perry or Frisken.

9. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alysa N. Brautigam whose telephone number is 703-305-8631. The examiner can normally be reached on 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 703-308-6829. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

anb

A handwritten signature in black ink that reads "Matthew C. Bella". The signature is fluid and cursive, with the first name "Matthew" being more prominent than the last name "Bella".

MATTHEW C. BELLA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600